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NEW UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. 1.53(b))

Docket No.

19529-038

Total pages in this submission

TO THE ASSISTANT COMMISSIONER FOR PATENTS

Box Patent Application
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

PAGING TRANSCEIVERS AND METHODS FOR SELECTIVELY RETRIEVING MESSAGES

And invented by:

RICHARD J. HELFERICH

IF A CONTINUATION APPLICATION, check appropriate box and supply requisite information:

☐ Continuation ☒ Divisional

☐ Continuation-in-part (CIP) of prior application No.: 08/934,143

Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 53 page(s) and including the following:
- a. ☒ Descriptive title of the invention
 - b. ☒ Cross references to related applications (*if applicable*)
 - c. ☐ Statement regarding Federally-sponsored research/development (*if applicable*)
 - d. ☐ Reference to microfiche appendix (*if applicable*)
 - e. ☒ Background of the invention
 - f. ☒ Brief summary of the invention
 - g. ☒ Brief description of the drawings (*if drawings filed*)
 - h. ☒ Detailed description
 - i. ☒ Claims as classified below
 - j. ☒ Abstract of the disclosure

Application Elements (continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 U.S.C. 113)*
☒ Formal ☐ Informal Number of sheets: 12
4. ☒ Oath or Declaration
a. ☐ Newly executed (original or copy) ☐ Unexecuted
b. ☒ Copy from a prior application (37 C.F.R. 1.63(d) *(for continuation/divisional applications only)*
c. ☒ With Power of Attorney ☐ Without Power of Attorney
5. ☒ Incorporation by reference *(usable if Box 4b is checked)*
The entire disclosure of the prior application, from which a copy of the oath or declaration is Supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ Computer program in microfiche
7. ☐ Genetic sequence submission *(if applicable, all must be included)*
a. ☐ Paper copy
b. ☐ Computer readable copy
c. ☐ Statement verifying identical paper and computer readable copies

Accompanying Application

8. ☐ Assignment papers *(cover sheet & document(s))*
9. ☐ 37 C.F.R. 3.73(b) statement *(when there is an assignee)*
10. ☐ English translation document *(if applicable)*
11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS citations
12. ☒ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☐ Certified copy of priority document(s) *(if foreign priority is claimed)*
15. ☒ Certificate of Mailing
☐ First Class ☒ Express Mail (Label No.: EL542221766US)
16. ☒ Small Entity statement(s) - # submitted 1 (copy) *(if Small Entity status claimed)*

Accompanying Application (continued)

- 17.
- ☒
- Additional enclosures (please identify below):

(1) Notification That the Power of Attorney and Correspondence Has Changed During the Prosecution of the Patent Application Under 37 C.F.R. 1.63(d)(4)

Fee Calculation and Transmittal

The filing fee for this utility patent application is calculated and transmitted as follows:

☐ Large Entity ☒ Small Entity

CLAIMS AS FILED						
For	# Filed	# Allowed	# Extra	Rate		Fee
Total Claims	84	- 20 =	64	x	\$9.00	\$576.00
Independent Claims	29	- 3 =	26	x	\$40.00	\$1040.00
Multiple Dependent Claims (check if applicable)				<input type="checkbox"/>		
Other Fees (specify purpose):						
BASIC FEE						\$355.00
TOTAL FILING FEE						\$1,971.00

- ☒ A check in the amount of \$1,971.00 to cover the total filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge and Deposit Account No. 50-1553 as described below. A duplicate copy of this sheet is enclosed.
- ☐ Charge the amount of _____ as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.31(b).

Martin M. Zoltick

Dated: October 13, 2000

Martin M. Zoltick, Reg. No. 35,745
 Brian S. Rosenbloom, Reg. No. 41,276

MINTZ LEVIN COHN FERRIS SLOVSKY AND POPEO PC
 11911 Freedom Drive, Suite 400
 Reston, Virginia 20190
 703-464-4810
 Fax: 703-464-4895

Reston docs:12695.1(9SN011.DOC)

09/68321
 10/13/00

Attorney Docket No. 19504-014

STATEMENT CLAIMING SMALL ENTITY STATUS
UNDER 37 C.F.R. §1.9(f) and 1.27(b) - INDEPENDENT INVENTOR

Applicant: Richard J. Helferich
Serial No.: 08/934,143
Filed: September 19, 1997
Title: **PAGING TRANSCEIVERS AND METHODS FOR SELECTIVELY
RETRIEVING MESSAGES**

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 C.F.R. §1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☐ the specification filed herewith with title as listed above.
☒ the application identified above.
☐ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 C.F.R. §1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 C.F.R. §1.9(d) or a nonprofit organization under 37 C.F.R. §1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below.

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities (37 C.F.R. §1.27).

005101-1258900

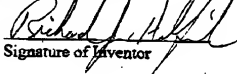
A. ~~Agency~~ Docket No. 195, 014

Serial No.: 08/934,143

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in a loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate (37 C.F.R. §1.28(b)).

Richard J. Helferich

Name of Inventor



Signature of Inventor

11-15-99

Date

RESON DOCS 5396

Reson docs 6404.1 (4XW011.DOC)

00688321:101300

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Docket No.: 19529-038

Richard J. Helferich

Serial No.: *To be assigned*

Examiner: *To be assigned*

Filing Date: *Herewith*

Group Art Unit: *To be assigned*

For: **Paging Transceivers and Methods For
Selectively Retrieving Messages**

The Assistant Commissioner for Patents
Washington, D.C. 20231

Preliminary Amendment

Dear Sir:

Before examination of the above-referenced patent application, Applicant submits the following amendments.

AMENDMENTS

In the Specification:

Please amend the specification as follows:

Page 1, after the title and before "RELATED APPLICATIONS" insert -- This application is a divisional of U.S. Patent Application S.N. 08/934,143, filed September 19, 1997, the entire contents of which are incorporated herein by reference. --

Page 1, line 6, after the first occurrence of "Information," insert --application Serial No. 08/934,132;--

0968221-101300

line 7, after "Times," insert --application Serial No. 08/934,337--;

line 7, change "Selectively" to --Selective--;

line 8, after "Paging," insert --application Serial No. 08/933,344--; and

line 15, change "paging receiving" to --paging receiver--.

Page 2, line 22, after "display" insert --and/or play--.

Page 4, line 21, change "transceivers" to --transceiver--.

Page 6, line 3, change "messages" to --message--; and

line 21, change "paging receivers" to --pager transceivers--.

Page 7, line 10, change "message" to --messages--.

Page 18, line 9, after "call" insert --signals--;

line 15, after "83" insert --if an acknowledgment signal was received,--;

line 17, change "82" to --83--; and

line 21, change "is" to --are--.

Page 21, line 16, change "The messages" to --One or more messages--;

line 18, after "addresses" insert --or recipients--;

line 23, delete "another";

line 23, after the first occurrence of "or" insert --a--; and

line 23, change the second occurrence of "or" to --of--.

Page 22, line 9, change "Fig. 7" to --Fig. 8--; and

line 16, delete the first occurrence of "135".

Page 24, line 3, change "each" to --the--.

Page 25, line 6, after "If" insert --at step 138--;

line 8, after "If" insert --at step 138 the user responds that--;

line 10, after "and" insert --a delay occurs at step 141 with delay circuit 28, as described above. After the delay, a call is established with system 30 at step 139 and flow continues as previously described.--;

line 10, change "the process" to --The process--; and

line 21, after "At" insert --step--.

Page 26, line 14, after "time" insert --. A delay occurs at step 141 with delay circuit 28 as described above. After the delay, a call is established with system 30 at step 139 and flow continues as previously described. Transmission to system 30 may also take place at a later time--; and

line 22, after "information" insert --and/or--.

Page 27, line 15, after the second occurrence of "call" insert --at step 141--;

line 15, after "session," insert --or some later time--; and

line 16, after "session" insert --or after the delay,--.

Page 28, line 15, delete "at step"; and

line 16, delete "132".

Page 29, line 1, change "pre stored" to --pre-stored--;

line 13, after "storage" insert --and retrieval--; and

line 13, after "unit 32" insert a period.

Page 30, line 5, after "If" insert --the user responds--;

line 5, after "yes" insert --at step 138--;

line 6, after "If" insert --the user responds--;

line 6, after "no" insert --at step 138--; and

line 7, after "30" insert --after the delay of step 141,--.

Page 33, line 23, change "transmitted" to --transmitting--.

Page 35, line 22, change both occurrences of "201" to --35--.

Page 36, line 2, change "is" to --are--; and

line 3, change "station" to --stations--.

Page 38, line 18, delete "function of"; and

line 18, after "retrieve" insert --message--.

In the Claims:

Please cancel claims 1-53.

--54. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a processor for generating a request signal indicating an action and indicating the message; and

a transmitter for transmitting to the system the request signal, whereupon receiving the signal, the system performs the action on the message.

55. The transmitting and receiving device of claim 54, wherein the indicated action is one of deleting the message from the system, forwarding the message to a specified recipient, saving the message, and replying to the message.

56. The transmitting and receiving device of claim 54, further comprising a user

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means for generating a request signal in response to the user interface means receiving the command, the request signal comprising an action identifier corresponding to the action specified by the command; and

a transmitter for transmitting the request signal to the system, whereupon receiving the request signal, the system performs the action identified by the action identifier on the message stored therein.

62. The transmitting and receiving device of claim 61, wherein the action is to delete the message.

63. The transmitting and receiving device of claim 61, wherein the action is to save the message.

64. The transmitting and receiving device of claim 61, wherein the action is to send the message to the transmitting and receiving device.

65. The transmitting and receiving device of claim 61, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

66. A system, comprising:
a storage and retrieval unit that stores a message intended for a transmitting and receiving device;

means for transmitting to the transmitting and receiving device a signal comprising a message identifier that identifies the message;

means for receiving a retrieve message request signal transmitted from the transmitting and receiving device;

means for determining the priority of the message;

means for re-transmitting the signal comprising the message identifier to the transmitting and receiving device if the priority of the message is determined to be greater than or equal to a predetermined priority and the receiving means does not receive the retrieve message request signal within a predetermined amount of time from when the transmitting means first transmitted the signal.

67. The system of claim 66, further comprising means for transmitting the message to the transmitting and receiving device in response to the receiving means receiving the retrieve message request signal.

68. The system of claim 66, wherein the transmitting means transmits the signal to a base station, which then transmits the signal to the transmitting and receiving device.

69. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal;

a transmitter for transmitting signals to the system; and

means for a user of the transmitting and receiving device to enable and disable acknowledgment signals, wherein, if acknowledgment signals are enabled, the transmitter transmits an acknowledgment signal in response to the receiver receiving the selective call signal, and, if acknowledgment signals are disabled, the transmitter does not transmit acknowledgment signals.

70. The transmitting and receiving device of claim 69, wherein the selective call signal comprises a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal.

71. The transmitting and receiving device of claim 70, further comprising a user interface for receiving from a user of the transmitting and receiving device an input specifying an action to be performed by the system on the message stored in the system.

72. The transmitting and receiving device of claim 71, further comprising a processor for generating a request signal in response to the user interface receiving the input from the user, the request signal indicating the action to be performed by the system and indicating the message, wherein the transmitter transmits the request signal to the system, whereupon receiving the request signal the system performs the action on the message.

73. The transmitting and receiving device of claim 69, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

74. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal;

a transmitter for transmitting signals to the system; and

a user interface for querying a user of the transmitting and receiving device whether the receipt of the selective call signal should be acknowledged, wherein, if the user indicates that the receipt of the selective call signal should be acknowledged, the transmitter transmits an

acknowledgment signal to the system, and, if the user does not indicate that the receipt of the selective call signal should be acknowledged, the transmitter does not transmit an acknowledgment signal to the system.

75. The transmitting and receiving device of claim 74, wherein the selective call signal comprises a message identifier that identifies a message that is stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal.

76. The transmitting and receiving device of claim 75, wherein the user interface is further for receiving from the user an input specifying an action to be performed by the system on the message stored in the system.

77. The transmitting and receiving device of claim 76, further comprising a processor for generating a request signal in response to the user interface receiving the input from the user, the request signal indicating the action to be performed by the system and indicating the message, wherein the transmitter transmits the request signal to the system, whereupon receiving the request signal the system performs the action on the message.

78. The transmitting and receiving device of claim 74, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

79. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:
a receiver for receiving a selective call signal;

a user interface for providing a user with an acknowledgment option after the receiver receives the selective call signal;

a processor programmed to generate an acknowledgment signal in response to the user activating the acknowledgment option; and

a transmitter for transmitting the acknowledgment signal to the system.

80. The transmitting and receiving device of claim 79, wherein the selective call signal comprises a message identifier that identifies a message that is stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal.

81. The transmitting and receiving device of claim 80, wherein the user interface is further for receiving from the user an input specifying an action to be performed by the system on the message stored in the system.

82. The transmitting and receiving device of claim 81, wherein the processor is programmed to generate a request signal in response to the user interface receiving the input from the user, the request signal indicating the action to be performed by the system and indicating the message, wherein the transmitter transmits the request signal to the system, whereupon receiving the request signal the system performs the action on the message.

83. The transmitting and receiving device of claim 79, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

89. A system, comprising:

a storage unit that stores a message intended for one or more transmitting and receiving devices;

means for transmitting to the one or more transmitting and receiving devices a selective call signal comprising a message identifier identifying the message and an acknowledgment request, wherein the message is not included in the selective call signal;

means for receiving a request signal transmitted from any one of the one or more transmitting and receiving devices, wherein the request signal identifies the message and an action to be performed on the message; and

means for performing the action.

90. The system of claim 89, wherein the action is to transmit the message to the transmitting and receiving device that transmitted the request signal.

91. The system of claim 89, wherein the action is to delete the message from the storage unit.

92. The system of claim 89, wherein the action is to forward the message to a recipient specified in the request signal.

93. The system of claim 89, wherein the action is to transmit a reply message to the originator of the message, the reply message being included in the request signal.

94. The system of claim 89, wherein the transmitting means transmits the selective call signal to a base station, which then transmits the signal to the one or more transmitting and receiving devices.

95. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal comprising a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal;

a user interface for receiving from a user of the transmitting and receiving device a command indicating that the message identifier should be sent to a specified recipient;

a processor for generating a request signal in response to the user interface means receiving the command, the request signal comprising a command identifier corresponding to the command; and

a transmitter for transmitting the request signal to the system, whereupon receiving the request signal, the system performs the command identified by the command identifier.

96. The transmitting and receiving device of claim 95, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

97. The transmitting and receiving device of claim 96, wherein the processor initiates a call after the user interface receives from the user an input indicating that a call should be initiated.

98. The transmitting and receiving device of claim 95, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the

transmitting and receiving device.

99. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver (a) for receiving a selective call signal comprising a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal, and (b) for receiving the message identified by the message identifier;

a user interface for receiving from a user of the transmitting and receiving device a command indicating that the user desires to forward the message to a recipient;

a transmitter for transmitting information to the system; and

a processor programmed (a) to generate a forward message request command in response to the user interface receiving the command and (b) to determine whether the message is currently stored in the system, wherein

the processor is further programmed to direct the transmitter to transmit the message and the forward message request command to the system if the processor determines that the message is not currently stored in the system, and

the processor is further programmed to direct the transmitter to transmit to the system (a) an identifier for locating the message stored in the system and (b) the forward message request command if the processor determines that the message is currently stored in the system.

100. The transmitting and receiving device of claim 99, wherein the processor determines whether the message is stored within the system by generating a message status request signal, directing the transmitter to transmit the message status request signal to the system, and receiving a message status signal transmitted from the system, wherein the message status signal indicates whether the message is stored within the system.

101. The transmitting and receiving device of claim 99, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

102. The transmitting and receiving device of claim 101, wherein the processor initiates a call after the user interface receives from the user an input indicating that a call should be initiated.

103. The transmitting and receiving device of claim 99, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

104. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a selective call signal comprising a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal;

a user interface for receiving from a user of the transmitting and receiving device an input specifying two or more functions to be performed on the message stored in the system;

a processor for generating a request signal indicating the two or more functions to be performed; and

a transmitter for transmitting the request signal to the system, whereupon receiving the request signal, the system performs the two or more functions.

105. The transmitting and receiving device of claim 104, wherein one of the two or more functions is to send the message to the transmitting and receiving device and another of the two or more functions is to store the message within the system.

106. The transmitting and receiving device of claim 104, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

107. The transmitting and receiving device of claim 106, wherein the processor initiates a call after the user interface receives from the user an input indicating that a call should be initiated.

108. The transmitting and receiving device of claim 104, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

109. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

means for receiving a selective call signal from a system remote from the transmitting and receiving device, the selective call signal comprising a message identifier that identifies a message stored in the remote system;

means for receiving from a user of the transmitting and receiving device a first input specifying a first function to be performed on the message stored in the system, wherein the first function is to transmit the message from the system to the transmitting and receiving device;

means for generating a first request signal indicating the first function;

means for transmitting the first request signal to the system, whereby, upon receiving the first request signal, the system performs the first function;

means for receiving and storing the message transmitted from the system;

means for receiving from the user a second input specifying a second function to be performed on the message stored in the system, wherein the second function is to save the message in the system;

means for generating a second request signal indicating the second function; and

means for transmitting the second request signal to the system, whereby, upon receiving the second request signal, the system performs the second function.

110. The transmitting and receiving device of claim 109, wherein the processor delays the transmitter from sending the first request signal until a call is in progress.

111. The transmitting and receiving device of claim 110, wherein the processor initiates a call after the transmitting and receiving device receives from the user an input indicating that a call should be initiated.

112. The transmitting and receiving device of claim 109, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

113. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

means for receiving a first selective call signal comprising a message identifier that identifies a message stored in a system remote from the transmitting and receiving device, wherein the message is not included in the selective call signal; and

means for receiving a second selective call signal comprising at least part of the message identifier and comprising message status information indicating a status of the message stored in the system.

114. The transmitting and receiving device of claim 113, further comprising means for displaying to a user of the transmitting and receiving device the message status information.

115. The transmitting and receiving device of claim 113, further comprising:
a user interface for receiving from a user of the transmitting and receiving device an input specifying a function to be performed on the message stored in the system;
a processor for generating a request signal indicating the function to be performed; and
a transmitter for transmitting the request signal to the system, whereupon receiving the request signal, the system performs the function.

116. The transmitting and receiving device of claim 113, wherein the processor delays the transmitter from sending the request signal until a call is in progress.

117. The transmitting and receiving device of claim 116, wherein the processor initiates a call after the transmitting and receiving device receives from the user an input indicating that a call should be initiated.

118. The transmitting and receiving device of claim 113, wherein the selective call signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

a user interface for providing a user of the transmitting and receiving device with the ability to disable acknowledgment of notification signals, wherein a notification signal is a signal notifying the user that information intended for the transmitting and receiving device is stored in a system and available to be retrieved from the system by the transmitting and receiving device;

a processor for generating an acknowledgment signal in response to the receiver receiving the notification signal if acknowledgment of notification signals has not been disabled; and

the receiver receives from the system the information identified by the information identifier, and

120. The transmitting and receiving device of claim 119, wherein the receiver receives the notification signal from a paging network.

122. The transmitting and receiving device of claim 119, wherein the notification signal also includes an address signal, wherein the address signal is associated with only the transmitting and receiving device.

123. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal comprising a message identifier identifying a message that is stored in the remote system, wherein the message is not included in the selective call signal;

retrieving the message from the system;

receiving a command to perform an action on the message stored in the remote system from a user of the transmitting and receiving device after retrieving the message from the system;

generating a request signal in response to receiving the command, the request signal comprising an action identifier corresponding to the action specified by the command; and

transmitting the request signal to the system, whereupon receiving the request signal, the system performs the action identified by the action identifier on the message stored therein.

124. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the system, comprising the steps of:

storing a message intended for the transmitting and receiving device;

transmitting to the transmitting and receiving device a signal comprising a message identifier that identifies the message;

determining the priority of the message; and

re-transmitting the signal comprising the message identifier to the transmitting and receiving device if the priority of the message is determined to be greater than or equal to a predetermined priority and a retrieve message request signal from the transmitting and receiving

device has not been received within a predetermined amount of time from when the signal comprising a message identifier was first transmitted to the transmitting and receiving device.

125. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal comprising a message identifier that identifies a message that is stored in the system, wherein the message is not included in the selective call signal;

querying a user of the transmitting and receiving device whether the receipt of the selective call signal should be acknowledged; and

transmitting an acknowledgment signal to the system only if, in response to the query, the user indicates that the receipt of the message identifier should be acknowledged.

126. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal;

determining whether the selective call signal comprises an acknowledgment request;

generating an acknowledgment signal for acknowledging the receipt of the selective call signal only if the selective call signal comprises an acknowledgment request; and

transmitting the acknowledgment signal to the system if the acknowledgment signal is generated.

127. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the system, comprising the steps of:

storing a message intended for the transmitting and receiving device;
transmitting to the transmitting and receiving device a selective call signal comprising an acknowledgment request and a message identifier identifying the message;
receiving a request signal transmitted from the transmitting and receiving device, wherein the request signal identifies the message and an action to be performed on the message; and
performing the action.

128. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:
receiving a selective call signal comprising a message identifier that identifies a message stored in the system, wherein the message is not included in the selective call signal;
receiving from a user of the transmitting and receiving device a command indicating that the message identifier should be sent to a specified recipient;
generating a request signal in response to receiving the command, the request signal comprising a command identifier corresponding to the command; and
transmitting the request signal to the system, whereupon receiving the request signal, the system performs the command identified by the command identifier.

129. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:
receiving a selective call signal comprising a message identifier that identifies a message stored in the system, wherein the message is not included in the selective call signal;
receiving from the system the message identified by the message identifier;

receiving from a user of the transmitting and receiving device a command indicating that the user desires to forward the message to a recipient;

generating a forward message request signal in response to the user interface receiving the command;

determining whether the message is stored in the system;

including the received message in the forward message request signal only if it is determined that the message is not stored in the system;

including an identifier for locating the message stored in the system in the forward message request signal if it is determined that the message is stored in the system; and

a transmitter for transmitting the forward message request signal to the system.

130. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a selective call signal from the system, the selective call signal comprising a message identifier that identifies a message stored in the system;

receiving from a user of the transmitting and receiving device a first input specifying a first action to be performed by the system on the message stored in the system, wherein the first action is to transmit the message to the transmitting and receiving device;

generating a first request signal indicating the first action;

transmitting the first request signal to the system, whereby, upon receiving the first request signal, the system performs the first action;

receiving and storing the message transmitted from the system;

receiving from the user a second input specifying a second action to be performed by the system on the message stored in the system, wherein the second action is to save the message in the system;

generating a second request signal indicating the second action; and
transmitting the second request signal to the system, whereby, upon receiving the second request signal, the system performs the second action.

131. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a first selective call signal comprising a message identifier that identifies a message stored in the system, wherein the message is not included in the selective call signal;
and

receiving a second selective call signal comprising at least part of the message identifier and message status information indicating a status of the message stored in the system.

132. In a communications network comprising a transmitting and receiving device for transmitting data to and receiving data from a system remote from the transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

providing a user of the transmitting and receiving device with the ability to disable acknowledgment of notification signals, wherein a notification signal is a signal notifying the user that information intended for the transmitting and receiving device is stored in the system and available to be retrieved by the transmitting and receiving device;

receiving from the system a notification signal having an information identifier that identifies information that is stored in the system;

generating an acknowledgment signal in response to the receiver receiving the notification signal if acknowledgment of notification signals has not been disabled;

transmitting the acknowledgment signal to the system after it is generated;

receiving from the system the information identified by the information identifier; and

133. In a communication system comprising a first system, a second system, a base station, and a transmitting and receiving device, a method performed by the first system, comprising the steps of:

generating a page;

providing the page to the base station for transmission to the transmitting and receiving device.

receiving a message intended for a user of the transmitting and receiving device;

transmitting information regarding the message to the first system, the information including a system identifier that is associated with the second system and message information that identifies the message;

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performing the action.

135. In a communication system comprising a plurality of systems, a base station, and a transmitting and receiving device, a method performed by the transmitting and receiving device, comprising the steps of:

receiving a page transmitted from the base station, the page comprising (a) a system identifier identifying a particular one of the plurality of systems and (b) message information identifying a message that is stored in said particular one of the plurality of systems and that is intended for a user of the transmitting and receiving device;

informing the user that the page has been received:

receiving input from the user specifying an action to be performed on the message; and transmitting, to the system identified by the system identifier, an action identifier corresponding to the action specified by the user.

136. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver (a) for receiving a selective call signal having an information identifier signal identifying information stored in a system, the information not being included in the selective call signal, and (b) for receiving the identified information;

a processor for generating a first alert signal after the receiver receives the information identifier signal and for generating a second alert signal after the receiver receives the identified information; and

a user interface (a) for generating, in response to the processor generating the first alert signal, a first alert to inform a user of the transmitting and receiving device that the information identifier signal has been received, and (b) for generating, in response to the processor generating

the second alert signal, a second alert to inform the user that the information has been received, wherein the first alert is distinguishable from the second alert.

137. A transmitting and receiving device for transmitting data to and receiving data from a communication system, comprising:

a receiver for receiving a notification message from a first remote system, the notification message comprising a system identifier identifying a second remote system and an information identifier identifying information stored in the second remote system;

a user interface for receiving from a user of the transmitting and receiving device an input specifying an action to be performed on the information stored in the second remote system;

a processor for generating a request message indicating the action to be performed on the information and for addressing the request message to the second remote system; and

a transmitter for transmitting the request message to the second remote system.--

REMARKS

With the foregoing amendment, claims 54-137 are pending in the application, with claims 54, 61, 66, 69, 74, 79, 84, 89, 95, 99, 104, 109, 113, 119, and 123-137 being in independent form. Claims 1-53 have been canceled. New claims 54-137 are added. No new matter has been added to the application.

Applicant(s): HELFERICH
Attorney Docket No. 19529-038

Prompt and favorable consideration of the present application is respectfully requested.

Respectfully submitted,



Martin M. Zoltick
Registration Number 35,745
Brian S. Rosenbloom
Registration Number 41,276
Mintz, Levin, Cohn, Ferris,
Glovsky and Popeo, P.C.
11911 Freedom Drive, Suite 400
Reston, VA 20190
Telephone 703/464-4800
Attorneys for Applicant

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PAGING TRANSCEIVERS AND METHODS FOR
SELECTIVELY RETRIEVING MESSAGES

RELATED APPLICATIONS

Reference is made to co-pending patent applications filed on September 19, 1997, entitled "Paging Transceivers and Methods for Selectively Erasing Information," "Pager Transceivers and Methods for Performing Action on Information at Desired Times," and "Methods and Systems for Selectively Paging," each filed by Richard J. Helferich.

FIELD OF THE INVENTION

The present invention relates generally to paging transceivers and methods for selectively acting on messages and, more particularly, to paging transceivers and methods for selectively retrieving messages.

BACKGROUND OF THE INVENTION

In general, a paging receiver can be classified into one of four categories: an alert or tone only paging receiver, a numeric paging receiving, an alphanumeric paging receiver, or a voice paging receiver. One common characteristic of all of these paging receivers is that they monitor the air waves and notify the user when their particular address has been detected. For the alert or tone only paging receiver, the paging receiver would generate a tone or beep when its address is detected. The other paging receivers, upon detecting their address, would

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additionally store a message associated with the address signal and display or play it to the user. The message for a numeric paging receiver would be a set of numbers, typically the calling person's telephone number, and the message for an alphanumeric paging receiver would be a set of numbers and/or letters. The user of an alphanumeric paging receiver could therefore receive a message in the form of a telephone number with some descriptive text. For the voice paging receiver, the message that is stored is a voice message that the user can later play to hear the message.

A paging receiver is typically a rather small electronic device and, accordingly, has a limited amount of memory for storing messages that have been received from a base station in a paging system. Because of the relatively small size of the memory, the paging receiver can store only a limited number of messages. A user can delete messages from memory but will oftentimes desire to save a message, such as temporarily until the user makes a note of the message or until he or she is able to respond to the page. The messages that are saved in memory, however, reduce the space in memory that is available to receive new messages. This demand on space in memory is increasing as the size of the messages continue to grow and as users receive a greater number of messages. Although more memory can be added to accommodate more messages, the added cost and space needed for extra memory runs counter to the desires to keep the paging receiver small and inexpensive. A need therefore exists for a paging receiver which can display messages while efficiently using memory.

In addition to the demand on paging receiver memory, paging systems will

reach the base station. For example, when a paging transceiver is located in a basement of a building, in a subway, or in an airplane, the paging transceiver may be unable to issue a reply that can reach the base station. As a result, the base station may continue to transmit a page to a paging transceiver and the paging transceiver will continue to receive the message but the base station cannot detect the reply being issued by the paging transceiver. This unnecessary transmission of duplicate messages and the ineffectual reply signals transmitted by the paging transceivers consume valuable resources of the paging system and of the paging transceiver.

For safety reasons, a user may at times have to turn off his or her paging transceiver. For instance, when the user is on an airplane, the transmissions from the paging transceiver can interfere with the instrumentation or communication within the cockpit of the plane. The paging transceiver therefore should not be operating within the plane or around other electronic equipment that are sensitive to interference from the signals transmitted by the paging transceiver. As another example, if the user is in an environment that contains electronic detonators for explosive materials, the signals transmitted by the paging transceiver could possibly trigger an explosion. The user therefore must turn his or her paging transceiver off to ensure that it does not transmit any reply or acknowledgment signals in response to a received page. Although it may be dangerous for the paging transceivers to issue a reply signal in these situations, the signals transmitted by the base station may at times be safely received by the paging transceiver. Since the paging transceiver automatically issues a reply in response

to a received message, the paging transceiver must nonetheless be turned off so as to not pose a risk to the user. During these times that the paging transceiver must be turned off, the user unfortunately is unable to receive any page or message. A need therefore exists for a paging transceiver that can notify a user of a message without automatically generating a reply message or acknowledgment to the base station.

SUMMARY OF THE INVENTION

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The present invention solves the problems described above with methods and systems for selective paging. A paging system notifies a paging transceiver that a message has been received but does not initially transmit the associated message. The user, upon being notified of the message, can then download the entire message at a time convenient to the user, which allows the user to download messages at less-expensive off-peak hours and allows the user to place the paging transceiver at a location where it can easily receive the message and reply to the message. Since the messages are not initially transmitted to the paging transceiver, the paging transceiver can receive and store a greater number of pages with minimal increase in the size of memory. Further, because entire messages are not automatically transmitted and since the user can position the paging transceiver to issue a sufficiently strong reply, traffic in the paging system can be controlled and actually reduced.

The system may transmit some identifying information about the page to the user without sending the entire message. For instance, the base station may

identify the type of message, such as email, voice, or text, and also indicate the caller or other descriptive material about the message. The user can then determine the priority of the messages and whether he or she wants to retrieve the message, play the message, erase the message, store the message, forward, reply, or otherwise act on the message. The user is also given control over the messages stored remotely from the paging transceiver and can erase or store these messages from the paging transceiver. The paging transceiver may have a timer for allowing the user to program the paging transceiver to perform a desired function on a message at a particular time.

The information initially sent to the user may also indicate the location of the stored message. For instance, the system paging a particular paging transceiver to notify it that a page has been received need not be the system actually storing the content of the message. Instead, a plurality of systems may store the contents of messages with one or more of the systems paging the paging transceiver. The paging transceiver would be provided sufficient information on the system storing the message so that it can communicate with this system. The system paging the paging transceiver can therefore act as a clearinghouse for other messaging systems by notifying a user of all messages received regardless of their source or type.

Accordingly, it is an object of the present invention to provide pager transceivers and methods for paging that conserve memory in paging receivers.

It is another object of the present invention to provide pager transceivers and methods for paging that conserve valuable air time.

It is a further object of the present invention to provide pager transceivers and methods for paging that provide users with remote control over their messages.

It is yet another object of the present invention to provide pager transceivers and methods for paging that allow users to select when and how action should be taken on their messages.

It is yet a further object of the present invention to provide pager transceivers and methods for notifying users of received messages.

It is also an object of the present invention to provide pager transceivers and methods for providing control to users over message stored at remote locations.

It is still another object of the present invention to provide pager transceivers and methods that notify users of messages received from multiple sources.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and form a part of the specification, illustrate preferred embodiments of the present invention and, together with the description, serve to explain the principles of the invention. In the drawings:

Fig. 1 is a block diagram of a paging transceiver according to a preferred embodiment of the invention;

Fig. 2 is a more detailed block diagram of the transceiver in the paging

transceiver of Fig. 1;

Fig. 3 is a block diagram of a communication system according to a preferred embodiment of the invention;

Figs. 4A and 4B are flow charts depicting an exemplary set-up routine for establishing communications between the system of Fig. 3 and the transceiver of Fig. 1;

Fig. 5 is a flow chart depicting a paging process;

Fig. 6 a flow chart depicting of process of notifying a paging transceiver of an unread message;

Fig. 7 is a flow chart depicting a process of receiving a page at the paging transceiver of Fig. 1;

Fig. 8 is a flow chart depicting a process of selecting a function at the paging transceiver of Fig. 1;

Fig. 9 is a generic flow chart depicting a selective process performed at the paging transceiver of Fig. 1 for executing a desired function;

Fig. 10 is a block diagram of a paging system having multiple systems for storing messages; and

Fig. 11 is a diagram of a data transmission for the system in Fig. 10.

DETAILED DESCRIPTION

Reference will now be made in detail to preferred embodiments of the invention, non-limiting examples of which are illustrated in the accompanying drawings. With reference to Fig. 1, a paging transceiver 100 according to a

the processor 27. The transmit section 24 also includes a transmitter frequency synthesizer 26 connected to the transmitter 25 which, based upon an input from the processor 27, selects the transmit frequency for the transmitter 25. The signals output by the transmitter 25 are supplied to the antenna interface 20 and then to the antenna 1.

The processor 27 comprises a central processing unit (CPU) having internal memory and switching capabilities. The CPU 27, for instance, comprises all necessary RAM and ROM memory, signal and data switching circuitry, signal processing circuitry, I-O Ports, and all standard program instructions and stored options commonly utilized in portable cellular telephones. The standard cellular telephone program instructions and CPU 27 may be obtained from a variety of suppliers. For instance, the instructions may be obtained from Wireless Link Inc. of Sunnyvale, California and the CPU 27 from GEC Plessey Semiconductor, Inc. of Scotts Valley, California.

The DSP 4 includes necessary I-O and program memory and are commonly utilized in cellular telephones. Any suitable DSP may be used in the paging transceiver 100. Alternatively, the controller 4 may comprise another type of electronic device, such as a codec or digital-to-analog/analog-to-digital conversion circuit or other type of modulator-demodulator including memory interface circuitry coupled to message memory 5 for reading and writing of messages.

The transceiver 2 also preferably includes a delay circuit 28. The delay circuit 28 may comprise a timer which informs the processor 27 of when a period of time has expired. The timer, for instance, may expire at a certain time of day.

the base station 34.

A call setup routine 40 for establishing communication between the system 30 and base station 34 will now be described with reference to Figs. 4A and 4B. At step 41, a connection, such as a telephone connection, is routed through the PSTN 35 or in the case of paging transceiver 100 the switch 36, to the input/output controller 33. The input/output controller 33 determines at step 42 whether the connection is with an automated signaling device or with a person. If the connection is with a person, then at step 48 the storage and retrieval unit 32 is activated to produce one or more voice responses during the call in order to guide the person throughout the process.

If, at step 42, the input/output controller 33 determines that the call is from a device, such as a paging transceiver 100 or computer terminal, data is exchanged between the paging transceiver 100 and system 30 at step 43. The type of data that may be exchanged includes, but is not limited to, the following types of data: identification data, command data, and information data. The data supplied from the PSTN 35 may also be exchanged at step 43 with this data including data for identifying the caller and subscriber, such as, for example, Caller ID and DNIS (Dialed Number Identification Service). Additionally, the data may be extracted from the base station 34. For example, the location of the paging transceiver 100 may be determined from a home location registry (HLR) and the HLR data may be utilized by the system 30 in order to determine the location of the paging transceiver 100, as opposed to having the paging transceiver 100 supply the location information to system 30.

the error or, as shown, the process may end at step 56. If no error was detected by the system 30 at step 51, a message, such as a voice message, is recorded and stored in the storage and retrieval unit 32 at step 52. At step 53, the system 30 determines whether a return receipt or a reply message is requested. If a return receipt or reply message is requested, the return address is entered by the caller or optionally issued by the system 30 and is stored by the system 30 in the storage and retrieval unit 32 at step 54. The system 30, for instance, may detect the address signal of the incoming call and, by default, store this number as the return address. After the return address is stored at step 54 or if a return address is not requested, the stored message is cross referenced to selective call data corresponding to the intended paging transceiver 100 at step 55. Also at step 55, a flag is set in a transmission stack file at the paging terminal controller 31 for subsequently transmitting selective call signals representative of the selective call data to the targeted paging transceiver 100. Housekeeping is performed by the system 30 and the call ends at step 56.

The base station 34, as shown in Fig. 3, comprises a switch 36, a transceiver antenna 37, and a transceiver base station 38. In response to a received message, the system 30 passes control information to switch 36 for setting up a page call. The switch 36, for instance, may be a mobile telephone switching office (MTSO) for interfacing to the transceiver base station 38. In the send page mode, selective call signals having an address associated with the paging transceiver 100 are transmitted. The address may be an address code for a paging transceiver, a mobile telephone number (MIN) for a mobile radiotelephone, or type of

identifying information for a communication device.

Command data and information data may also be communicated from the system 30 to the paging transceiver 100 through the base station 34. The command data and information data shall hereinafter be referred to as CI data, examples of which include the following: paging transceiver location, forward message, retrieve message, reply to message, paging transceiver ID, message identifiers, retrieval instructions, save message, erase message, message type, message length, time/date message received, system 30 ID, system 30 location, message address, message location, battery life, message identifier, format code, compression type, message age, message priority, alert codes, energy saving commands, memory status, program data, provisioning data, acknowledgment data and requests, function codes, sender name, current time, number of messages, mailbox number, phone number, return address, alpha numeric short messages, general command requests, group calls, and signal strength.

The address and command data and information may be transmitted over any suitable communication system. For instance, the data may be communicated over a paging system, a cellular system having short message service capabilities, such as GSM-SMS, a Cellular Digital Packet Data (CDPD) system, Personal Communications Services, or any other type of mobile radiotelephone system or communication system. Furthermore, the paging transceiver 100 preferably is able to communicate over more than one system, such as with both a paging network and a mobile radiotelephone network.

With reference to Fig. 5, a flow diagram 60 for performing a page call is

If an acknowledgment is not a system requirement, as determined at step 70, or after posting the acknowledgment flag at step 63, the system 30 sets a timer at step 64 and waits a period of time before proceeding to step 65. At step 65, the paging terminal controller 31 determines if the stored message has been read. If the message has been read, then at step 66 the system 30 posts a read flag in the subscriber data base to indicate that the message was delivered and read and at step 67 the process ends.

If, at step 65, the message had not been read, then at step 68 the system 30 determines the priority of the message and proceeds to step 69. If the priority is high, as determined at step 69, then at step 61 the page call is returned to the transmission stack at the designated priority level for re-transmission. If, on the

other hand, the priority is not high as determined at step 69, then the message has a low priority and the process ends at step 67.

An alternate routine 80 for notifying a paging transceiver 100 that an unread message is waiting is shown in Fig. 6. At step 81, the paging terminal controller 31 sorts through subscriber listings which have a corresponding unread and unnotified message in the storage and retrieval unit 32 and sends a page request to base station 34. At step 82, the switch 36 checks a home location registry (HLR) to determine the registered location and status of the remote paging transceiver 100. A page call is processed by transmitting selective call from transceiver base station 37 at step 82. If a page acknowledgment is desired for verification that the paging transceiver 100 recipient received the selective call signals, an Ack signal is manually or automatically transmitted from the paging transceiver 100 to base station 34 for storage in the subscriber database of paging terminal controller 31 at step 82.

At step 83, a notified flag is set in the subscriber data base corresponding to the unread message stored in the storage and retrieval unit 32 and the paging process for the current unread message ends at step 84. If at step 82 an acknowledgment signal was not received, the message is assigned a new priority and the process is subsequently repeated. Optionally, a plurality of priorities may be assigned to acknowledged and not acknowledged unread messages so that the paging transceiver 100 is sent a number of calls until the message is read by the subscriber.

In the preferred embodiment, the base station 34 is part of a mobile

radiotelephone network and the paging transceiver 100 is paged over the designated paging channel or the control channels of the network. In addition to paging the paging transceiver 100, the short messages or other data transmitted to the paging transceiver 100 is also preferably transmitted over the paging channel or control channels. Although the paging is preferably performed through a mobile radiotelephone network, the selective call signals may alternatively be routed to a paging system for transmitting an address code and CI data over an independent paging transmitter. In such a configuration, the paging transceiver 100 may be configured to have a separate paging receiver or transceiver compatible with the paging transmitter or paging transceiver. Since radio pager devices require much less energy than portable cellular telephones, a paging transceiver 100 configured with a low energy paging receiver would reduce energy required for receiving selective call signals and allow high energy circuitry of the paging transceiver 100 to be turned off until the user needs to retrieve or transmit messages. Other variations and modifications will be apparent to those skilled in the art.

A process 90 for receiving messages at a paging transceiver 100 is shown in Fig. 7. A selective call signal including an address is received by receive section 21 of the transceiver 100 at step 91. At step 92, the demodulated signal is processed by the CPU 27 to compare the received address with an address code stored in the CPU 27 memory. If the received address code does not match the stored address, flow returns to step 91 and the transceiver 100 continues to monitor transmissions for its address. When the address corresponds to the pre-stored

address code, as determined at step 92, the CPU 27 stores and processes any corresponding received CI data at step 93.

Next, at step 94, the CPU 27 determines if an acknowledgment transmission is required by the paging transceiver 100. The CPU 27 may always enable an acknowledgment in order to confirm at the system 30 or base station 34 that the selective call signals were received by the targeted paging transceiver 100. Alternatively, the CPU 27 may never enable an acknowledgment from the transceiver 100, which is useful in explosive environments where transmissions are dangerous and in environments where a reply from the paging transceiver 100 may cause harmful interference to other electronic equipment. The CPU 27 may, as another option, enable an acknowledgment only when acknowledgment data is contained within the received CI data, such as with a remote request. Finally, the CPU 27 may enable an acknowledgment in response to a user-enabled command.

Returning to step 94, if the paging transceiver 100 allows for an acknowledgment then at step 95 the CPU 27 determines whether the acknowledgment is required or if the acknowledgment is a user option. If the acknowledgment is required to be automatic, then an acknowledgment flag is set at step 97. If, on the other hand, the acknowledgment is not automatic but rather optional, then at step 96 the CPU 27 determines whether an acknowledgment has been enabled. If the acknowledgment has been enabled, then the acknowledgment flag is set in step 97.

At step 98, the CPU 27 determines whether short messages may be transmitted. Short messages may include CI data or any type of short coded

example, the user may select the functions of retrieving a message at step 114 and forwarding a message at step 112 and these functions may be performed in unison with each other or sequentially one after each other.

The paging transceiver 100 and system 30 may exchange status information during messaging calls initiated by the paging transceiver 100 or by selective call, such as page calls, initiated by the system 30. The status information may contain information corresponding to messages stored within the paging transceiver 100 or within the system 30. For example, if the system 30 erases a message that has resided in its memory for too long a period of time, such as an unsaved, read message, the system 30 may inform the paging transceiver 100 that the message no longer exists. If the message identifier stored in the paging transceiver 100 no longer corresponds to a message stored in the system 30 or in the paging transceiver 100, the CPU 27 removes the identifier for the no-longer existing message.

When the forward message function 112 is selected, flow proceeds to step 131 where the CPU 27 reads information pertaining to the message or plurality of messages selected by the user to be forwarded. The information may include a message identifier, location data, message length, message type, destination addresses, or other CI type data as previously described. At step 132, the CPU 27 determines whether the message cannot be forwarded without communicating with the system 30. At step 134, the CPU 27 determines if a call is in progress. If a call is in progress, CI data is exchanged at step 135 with the system 30 for forwarding messages. If the messages to be forwarded are located at the system 30, the

replying to messages as will be shown in more detail hereinafter.

With the send message function 115, in order to send a message, the message must first be stored at the paging transceiver 100 or at the system 30. The process of storing or recording messages is well know to those of ordinary skill in the art and accordingly will not be described in further detail. Examples of these devices are described in U.S. Patent No. 4,602,129 to Matthew, et al., titled "Electronic Audio Communications System With Versatile Message Delivery," and in U.S. Reissued Patent No. Re. 34,976 to Helferich et al, titled "Analog/Digital Voice Storage Cellular Telephone," both of which are incorporated herein by reference. The system 30 and paging transceiver 100 can record, store and retrieve a plurality of different types of messages as previously described depending on the application required.

If the send message function 115 is selected, the CPU 27 identifies the message to be sent and cross references it to the selected recipient address information. At step 132, the CPU 27 determines whether a call is required at step 132. The subsequent processing of sending a message should be apparent from the description above for forwarding a message and accordingly will not be duplicated in order to simplify description of the invention. The message to be sent may reside in the paging transceiver 100 or in the system 30. If the message resides in the system 30 and in the paging transceiver 100, the message in the system 30 corresponding to the CPU 27 message identifier will be sent in order to conserve air time. If the message does not reside in system 30, the message will be sent from the paging transceiver 100 to the system 30. If the message is to be sent from

the paging transceiver 100, the message may be a pre stored message or alternatively, the message may be transmitted to system 30 by paging transceiver 100 in real time during a call session between system 30 and paging transceiver 100.

If the erase message is selected at step 116, the erase message function allows a user to erase messages stored at the system 30 or at the paging transceiver 100 depending on the mode of operation. A message may be erased at a paging transceiver 100 without erasing the message identifier. If a message is erased at the paging transceiver 100 and the identifier still exists in message memory 5, the message can be retrieved from the system 30. In order to remove a message identifier at the paging transceiver 100, the message must be erased at the system 30. This feature causes the user to manage the messages at the platform, thereby conserving memory space at the storage unit 32. At step 131, the selected message to be erased is identified and the user is asked if the selected message in the paging transceiver is to be erased or if both copies of the message are to be erased. If the local message only is selected to be erased, the message identification information is kept and at step 133 the CPU 27 flags the message stored in memory 5 for erasure or overwriting. In other words, the message still exists but may be overwritten by another message when memory space is required and, until then, may be retrieved from message memory 5. If at step 132 a decision was made to erase both copies of the message, then at step 134 the CPU 27 determines if a call is in progress. If yes, at step 135 the CI data is exchanged instructing system 30 to erase the message. At step 131, the system 30 transmits an acknowledgment that

the message was erased, the CPU 27 flags the local message for erasure, the identifier is removed and both copies of the message and the identifiers are erased.

If at step 134 the CPU 27 determines that a call is not in progress, the CPU 27 at step 137 erases the local message and the user is asked if the system 30 copy of the message needs to be erased now. If yes, the call is established at step 139 and the process continues as previously described. If no, the necessary flags are set for erasing the remote message during the next communication with system 30 and the timer 28 is activated. The timer 28 may be utilized for a timed erase of the message stored at system 30.

The message reply function 117 is for sending a reply to an already received message. A reply message utilizes the same process as the send message function except that a return address is already correlated to the message targeted for a reply. During the send message function 115, the user is required to select an address or destination for the message to be sent. In other words, the user must know the destination or address in advance. The message reply function 117 does not require that the user know the address of the recipient because the message being replied to has a corresponding return address. As with the send message function 115, a reply message may be sent in real time or it may be pre-recorded and stored in the paging transceiver 100 for transmission to system 30. Additionally, the reply transmission may be delayed for a set period of time as previously described with timer 28.

In summary, as discussed above with reference to Figs. 5 and 6, the system 30 does not transmit the entire message to the paging transceiver 100 but rather

[illegible]

Figure 1

With paging transceiver 100, the user can position the paging transceiver in a desired location before initiating communication with the system 30. Thus, if the user is paged by system 30 while the user is in a subway, basement, or on an airplane, the user can postpone the delivery of the message until the paging transceiver 100 is in a better location to receive and reply to the message. Similarly, the user may be in an explosive environment or near sensitive electronic equipment and may postpone delivery of the message and a reply from the paging transceiver 100 until the user is out of the explosive environment or far enough

paging transceiver 100. Instead, the system 30 may send a plurality of alerts to a single paging transceiver 100 and each of those alerts may be broadcast to a plurality of paging transceivers 100. For instance, the system 30 may broadcast information to a plurality of transceivers 100 that share a common set of numbers within their mobile identification numbers. If the system 30 sends a plurality of alerts to a paging transceiver 100, these alerts may be displayed by the user interface 3 and the user can scroll through and act upon the messages as desired.

As discussed above, the system 30 and paging transceiver 100 allows information to be remotely acted upon by the paging transceiver 100. The system 30, however, also allows users access to their information via conventional ways, such as the PSTN 35. Therefore, a user may receive the alert with a paging transceiver 100 and decide to call in through the PSTN 35 to listen or otherwise act upon the message. The system 30 preferably is connected to the Internet whereby users can also gain access and act upon their information via the Internet.

The paging transceiver 100 preferably alerts the user both when a message identifier signal has been received and when complete messages have been received. The alerts may comprise any suitable indication to inform the user that the paging transceiver 100 has received a communication, such as a tone, vibration, or visual display. The alerts for a received identifier and for a received message are preferably different so as to allow a user to easily differentiate between the two communications.

The example provided in Fig. 3 was a single system 30 for storing messages on behalf of a plurality of paging transceivers 100. The invention,

however, may include any number of systems 30 for storing messages with each system 30 storing information for a transceiver 100 being considered a content provider. For instance, as shown in Fig. 10, a messaging system 200 may comprise a plurality of systems 30 connected to the PSTN 35 with system 30A being associated with base station 34A and transceiver antenna 37A and system 30B being associated with base station 34B and transceiver antenna 37B. Although three systems 30 are shown, the system 200 may include any number of systems 30 and, although two base stations 34 are shown, each system 30 may be associated with a base station 34 and transceiver antenna 37 or only one of the systems 30 may be associated with a base station 34 and transceiver antenna 37. Furthermore, each system 30 need not include a paging terminal controller 31 or a storage unit 32. System 30C, for instance, may include a storage and retrieval unit 32 and input/output controller 33 but not a paging terminal controller 31 and may page the paging transceiver 100 through the paging terminal controller 31 in system 30A. Conversely, a system 30, such as system 30A, may include a paging terminal controller 31 and an input/output controller 33 but not a storage and retrieval unit 32. Further, the input/output controller 33 need not be a separate unit but may be incorporated into the paging terminal controller 31 if the system 30 does not include a storage and retrieval unit 32, or into the storage and retrieval unit 32, if the system 30 does not include a paging terminal controller 31. The systems 30 and base stations 34 may communicate with each other through the PSTN 201 or through links or lines other than or in addition to the PSTN 201, such as through an SS7 backbone of a wireless network or through the Internet.

Additionally, each of the base stations 34A and 34B may be part of a paging network but is preferably part of a cellular network. Either one or both of base station 34A or 34B may page the paging transceiver and either one or both of the base stations 34A or 34B may deliver the contents of messages to the paging transceiver. Each of the systems 30A, 30B, and 30C may store messages on behalf of a user with the messages being of the same or different types. Furthermore, the messages stored within a single system 30 may be all the same type or may differ from each other.

As an example, system 30A may store voice mail messages and email messages directed to the user's office, system 30B may store voice mail messages directed to the user's home, and system 30C may store audio messages. The base station 34A acts as a clearinghouse for all messages delivered to the user to any of the systems 30 and pages the paging transceiver 100 whenever a message is received. Thus, when a voice mail message or email message is received at system 30A, the system 30A delivers a page to base station 34A which is then delivered to paging transceiver 100. When a voice message is received at system 30B, the system 30B sends information about the message to system 30A and system 30A then delivers a page to base station 34A for delivering the page to the paging transceiver 100. Similarly, when system 30C has an audio message it notifies system 30A and system 30A acts to have the page delivered to the paging transceiver 100.

An example of the data transmission 201 sent from system 30B or 30C to system 30A is shown in Fig. 11. The data transmission 201 includes system ID

additional or fewer fields than the example provided in Fig. 11.

The data transmission 201 also includes additional information that may be relayed and presented to the user. For instance, for many systems 30 that receive and store messages on behalf of the user, the additional descriptive information preferably comprises a return address for identifying the caller's telephone number to inform the user as to who left the message. For other systems 30 which may generate their own information, the additional information preferably describes the information available to the user. For instance, for a system 30 that allows users to sample songs, the additional information would indicate the title and the artist of the song and may also specify the cost to retrieve and play the song. Other uses of the additional information will be apparent to those skilled in the art.

The page sent to the paging transceiver 100 includes most, if not all, of the data transmission 201. The information transmitted to the paging transceiver 100, with reference to Fig. 7, may be inserted into a short message transmitted to the user at step 98. From the system ID information, the paging transceiver 100 can determine which system 30 it needs to respond to in order to act upon a message. For instance, system 30A may page the paging transceiver 100 and indicate that system 30B has a stored message. If the user selects the function of retrieve function, then the paging transceiver 100 can contact system 30B through base station 34B to retrieve the desired message. The paging transceiver 100 as discussed above may instead respond to base station 34A to retrieve the message and base station 34A would communicate with system 30B to retrieve or otherwise act upon the message.

The message information is used by the paging transceiver 100 to inform the user of the message or information stored at the system 30. The message type, length, priority, and additional descriptive material may be displayed or otherwise indicated to the user at the paging transceiver 100. From this information, the user can decide what type of action to take upon the message or information at the system 30.

As described with reference to Fig. 9, a call to the system 30 may be required in order for the paging transceiver 100 to perform a desired function. If a call is required, the paging transceiver 100 relays information in the data transmission 201 to the system 30. If the paging transceiver 100 responds to a system 30 other than the one storing the message or information, the paging transceiver 100 identifies the system 30 storing the message or information and also identifies the message. As discussed above, the message may be identified in a number of ways, such as with a message code or by specifying the location in memory where the message is stored. The call to the system 30 would automatically provide the transceiver identification information to the system 30, although the paging transceiver 100 could provide this information with the other information provided to the system 30.

Upon receiving a call from the paging transceiver 100, the system 30 reads the transceiver identification and message information to find the information requested by the paging transceiver 100. The information obtained from the paging transceiver 100 at the system 30 and the transfer of the requested information to the paging transceiver occurs at step 135 in Fig. 9.

CLAIMS

What is claimed is:

1. A paging transceiver, comprising:

a receiver for receiving a selective call signal having an information identifier signal identifying remote information available to the paging transceiver;

a processor for receiving the information identifier signal and for generating an alert signal after receiving the information identifier signal;

a user interface for receiving the alert signal and for generating an alert to inform a user that the information identifier signal has been received, the user interface also for receiving input from the user designating a desired action on the available information;

the processor for detecting the input at the user interface and for generating a request signal indicating the desired function, the request signal including at least part of the information identifier signal; and

a transmitter for transmitting the request signal to a system so that the desired function may be performed on the information identified by the information identifier signal.

2. The paging transceiver as set forth in claim 1, wherein the desired function is retrieving the information at the paging transceiver and the receiver is for receiving and demodulating the information.

3. The paging transceiver as set forth in claim 2, wherein the user interface is for presenting the information to the user.

4. The paging transceiver as set forth in claim 1, wherein the information is an audio file.

5. The paging transceiver as set forth in claim 1, wherein the information is a text file.

6. The paging transceiver as set forth in claim 1, wherein the information is a video file.

7. The paging transceiver as set forth in claim 1, wherein the information is a graphics file.

8. The paging transceiver as set forth in claim 1, wherein the information is a data file.

9. The paging transceiver as set forth in claim 1, further comprising a memory for storing the information identifier.

17. The paging transceiver as set forth in claim 16, wherein the reply signal includes an acknowledgment signal.

18. The paging transceiver as set forth in claim 17, wherein the processor sends the acknowledgment signal in response to an acknowledgment request signal contained within the selective call signal.

19. The paging transceiver as set forth in claim 17, wherein the processor sends the acknowledgment signal in response to a user-enabled command received at the user interface.

20. The paging transceiver as set forth in claim 16, wherein the reply signal includes a short message.

21. The paging transceiver as set forth in claim 1, further comprising a memory for storing a second information identifier signal identifying second information available to the user and also for storing the second information, the user interface is for receiving input from a user specifying a second desired function to be performed on the second information identified by the second information identifier signal, and the processor is for performing the second desired function on the second information.

28. The paging transceiver as set forth in claim 1, wherein the receiver receives the selective call signal over a mobile radiotelephone network.

29. The paging transceiver as set forth in claim 1, wherein transmitter transmits the request signal over a paging network.

30. The paging transceiver as set forth in claim 1, wherein the transmitter transmits the request signal over a mobile radiotelephone network.

31. The paging transceiver as set forth in claim 1, wherein the receiver receives the selective call signal from a second system.

32. A method for selectively receiving information at a paging transceiver, comprising the steps of:

receiving a selective call signal at a transceiver, the selective call signal including an information identifier signal;

informing a user that the information identifier signal has been received;

receiving input from a user specifying a desired function to be performed on the information identified by the information identifier signal;

generating a request signal indicating the desired function with the request signal including at least part of the information identifier signal; and

sending the request signal to a system so that the desired function may be performed on the information identified by the information identifier signal.

33. The method as set forth in claim 32, wherein the step of receiving the selective call signal comprises a step of receiving the selective call signal from a paging network.

34. The method as set forth in claim 32, wherein the step of receiving the selective call signal comprises a step of receiving the selective call signal from a mobile radiotelephone network.

35. The method as set forth in claim 32, wherein the desired function is retrieving the information at the transceiver and the method further comprises a step of receiving the information at the transceiver.

36. The method as set forth in claim 35, further comprising a step of presenting the information to the user.

37. The method as set forth in claim 35, wherein the information comprises an audio file and the method further comprises a step of playing the audio file to the user.

38. The method as set forth in claim 35, wherein the information comprises a text file and the method further comprises a step of displaying the text file to the user.

39. The method as set forth in claim 35, wherein the information comprises a video file and the method further comprises a step of displaying the video file to the user.

40. The method as set forth in claim 35, wherein the information comprises a graphics file and the method further comprises a step of displaying the graphics file to the user.

41. The method as set forth in claim 35, wherein the information comprises a data file and the method further comprises a step of storing the data file in memory.

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42. The method as set forth in claim 32, further comprising a step of generating a reply signal in response to the step of receiving the selective call signal.

43. The method as set forth in claim 42, wherein the step of generating the reply signal comprises a step of generating an acknowledgment signal.

44. The method as set forth in claim 43, wherein the step of generating the acknowledgment signal comprises a step of determining whether an acknowledgment is automatic.

45. The method as set forth in claim 43, wherein the step of generating the acknowledgment signal comprises a step of receiving a user-enabled command for generating an acknowledgment.

46. The method as set forth in claim 42, wherein the step of generating the reply signal comprises a step of generating a short message.

47. The method as set forth in claim 32, further comprising a step of storing second information specified by a second information identifier signal in memory, receiving input from a user specifying a second desired function to be

performed on the second information, and performing the second desired function on the second information at the transceiver.

48. The method as set forth in claim 32, wherein the step of sending the request signal to the system comprises steps of determining whether a call is currently in progress with the transceiver and transmitting the request signal if the call is in progress.

49. The method as set forth in claim 32, wherein the step of sending the request signal to the system comprises a step of receiving user input indicating that the call should be initiated.

50. The method as set forth in claim 32, wherein the step of sending the request signal to the system comprises a step of sending the request signal over a paging network.

51. The method as set forth in claim 32, wherein the step of sending the request signal to the system comprises a step of sending the request signal over a mobile radiotelephone network.

52. The method as set forth in claim 32, wherein the step of receiving the selective call signal occurs over a first network and the step of sending the request signal occurs over a second network.

53. The method as set forth in claim 32, further comprising a step of receiving an address signal with the selective call signal and the step of informing only occurs if the address signal is associated with the transceiver.

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ABSTRACT

A paging transceiver and method for selectively paging provides a page to a paging transceiver but does not automatically provide an associated message. The paging transceiver receives the page and alerts the user that a message is waiting and preferably provides a short description of the message. The user can then download or otherwise act on the message at a time and at a place convenient to the user. The user can therefore place the paging transceiver in a location where it can easily receive and reply to the message. The paging system conserves air time and the paging transceiver conserves memory by not automatically receiving the associated messages. The user can determine the time at which the paging transceiver receives transmissions, such as during off-peak hours. The messages stored by the systems and delivered to the paging transceiver may be of different types, such as voice, text, audio, or even video. In addition to messages, the paging system can store other information for the user, such as songs or video clips that the user can sample or updates on weather or stock rates.

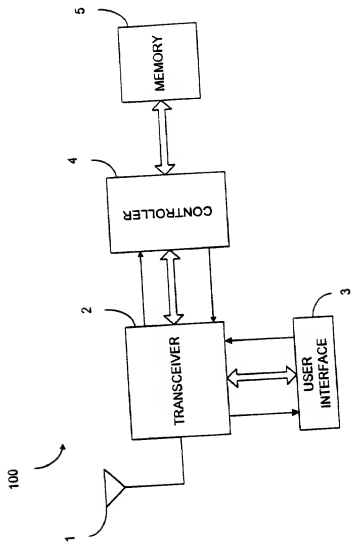
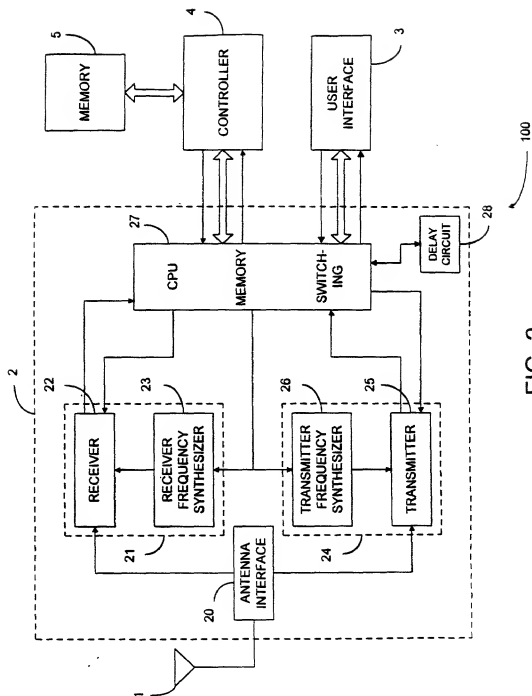


FIG. 1



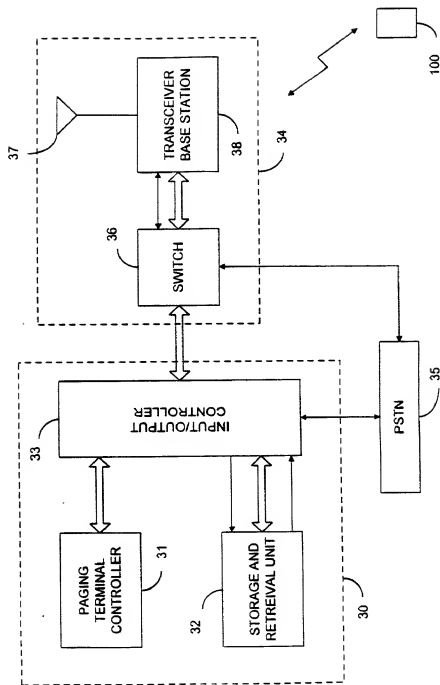


FIG. 3

2003

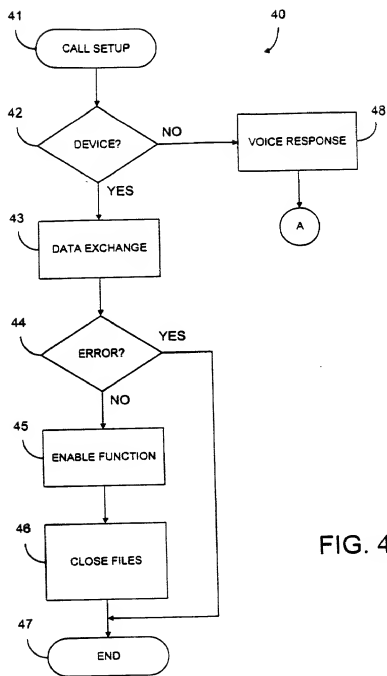


FIG. 4A

00000000.101000

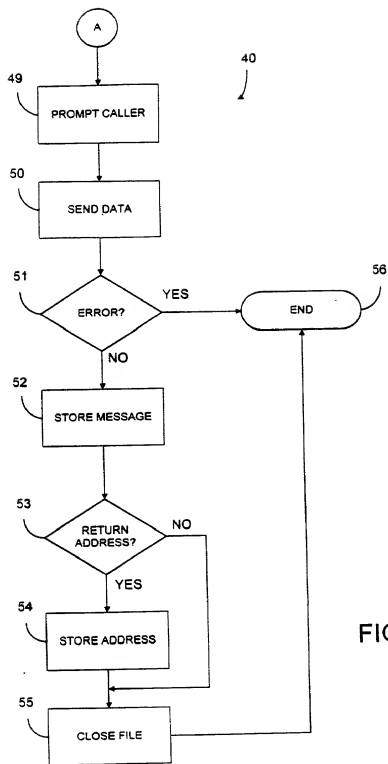


FIG. 4B

```

graph TD
    71[ASSIGN PRIORITY] --> 61[TRANSMIT PAGE]
    61 --> 62{ACK?}
    62 -- YES --> 63[POST ACK FLAG]
    62 -- NO --> 70{SYSTEM REQUIRED?}
    70 -- YES --> 71
    70 -- NO --> 63
    63 --> 64[SET TIMER]
    64 --> 65{MESSAGE READ?}
    65 -- YES --> 66[POST READ FLAG]
    65 -- NO --> 68[CHECK PRIORITY]
    66 --> 67([END])
    68 --> 69{PRIORITY HIGH?}
    69 -- YES --> 61
    69 -- NO --> 67
  
```

FIG. 5

FIG. 5

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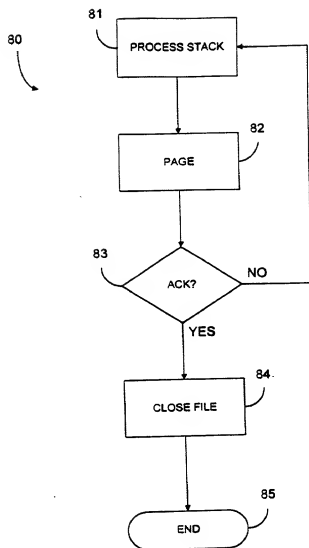
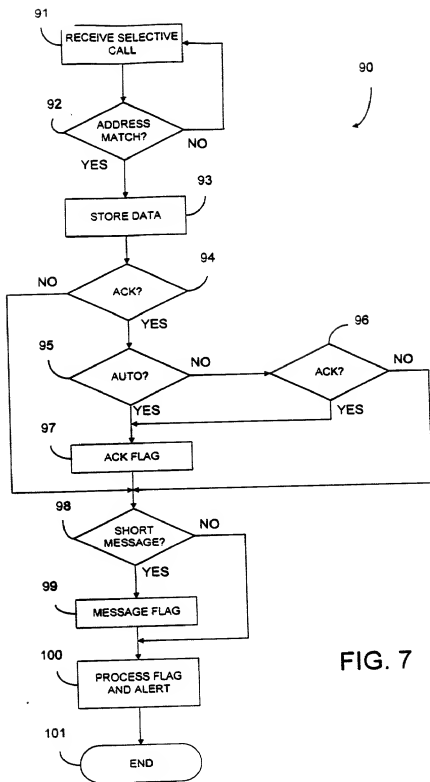


FIG. 6

[illegible]

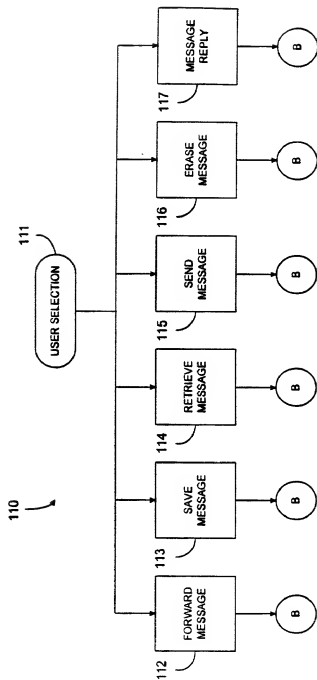


FIG. 8

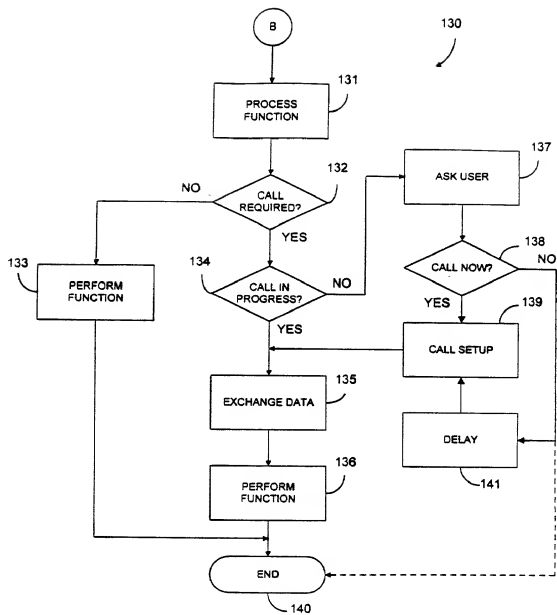


FIG. 9

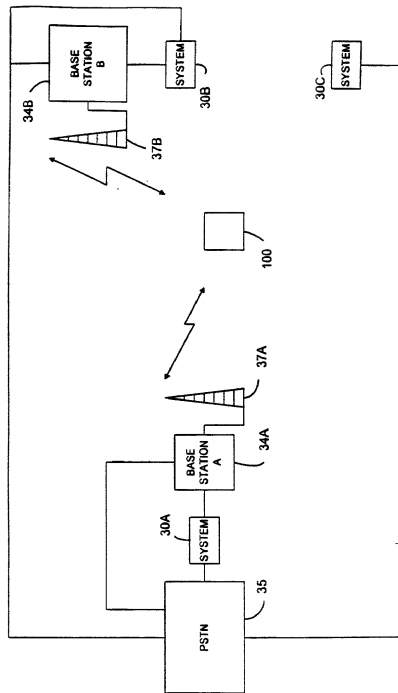


FIG. 10

00E101*12E8960

201



SYSTEM ID	TRANSCIVER(S) ID	MESSAGE ID	MESSAGE TYPE	MESSAGE LENGTH	MESSAGE PRIORITY	ADDITIONAL INFORMATION
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FIG. 11

We (I) hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

_____ (Application Number)	_____ (Filing Date)
_____ (Application Number)	_____ (Filing Date)

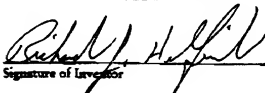
We (I) hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Application Serial No.	Filing Date	Status (pending, patented, abandoned)
_____	_____	_____
_____	_____	_____
_____	_____	_____

And we (I) hereby appoint: Norman F. Oblon, Registration Number 24,618; Marvin J. Spivak, Registration Number 24,913; C. Irvin McClelland, Registration Number 21,124; Gregory J. Maier, Registration Number 25,599; Arthur I. Neustadt, Registration Number 24,834; Richard D. Kelly, Registration Number 27,757; James D. Hamilton, Registration Number 28,421; Eckhard H. Kuesters, Registration Number 28,870; Robert T. Pous, Registration Number 29,099; Charles L. Gholz, Registration Number 26,395; Vincent J. Sunderdick, Registration Number 29,004; William E. Beaumont, Registration Number 30,996; Steven B. Kelber, Registration Number 30,073; Robert F. Gruse, Registration Number 27,295; Jean-Paul Lavalleye, Registration Number 31,451; Stephen G. Baxter, Registration Number 32,884; Martin M. Zolick, Registration Number 35,745; Robert W. Hahl, Registration Number 33,893; Richard L. Treanor, Registration Number 36,379; Steven P. Wehrhouch, Registration Number 32,829; John T. Goolkasian, Registration Number 26,142; Marc R. Labgold, Registration Number 34,651; William J. Healey, Registration Number 36,160; Richard L. Chinn, Registration Number 34,305; Steven E. Lipman, Registration Number 30,011; Carl E. Schlier, Registration Number 34,426; James J. Kulbaski, Registration Number 34,648; Catherine B. Richardson, Registration Number 39,007; Richard A. Neifeld, Registration Number 35,299; J. Derek Mason, Registration Number 35,270; and Surinder Sachar 34,423; our (my) attorneys, with full powers of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith, and we (I) hereby request that all correspondence regarding this application be sent to the firm of OBLON, SPIVAK, McCLELLAND, MAIER & NEUSTADT, P.C., whose Post Office Address is: Fourth Floor, 1755 Jefferson Davis Highway, Arlington, Virginia 22202.

We (I) declare that all statements made herein of our (my) own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 101 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

RICHARD J. HELFERICH
NAME OF FIRST SOLE INVENTOR


Signature of Inventor

March 20, 1998
Date

Residence: _____
Chapel Hill, North Carolina

Citizen of: U.S.

Post Office Address: 8408 Sterling Bridge Road
Chapel Hill, North Carolina 27516

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Docket No.:

19529-038

Richard J. Helferich

Serial No.: To Be Assigned

Filing Date: Herewith

For: **Paging Transceivers and Methods for
Selectively Retrieving Messages**

The Assistant Commissioner for Patents
Washington, D.C. 20231

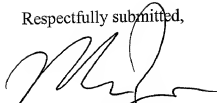
**Notification That the Power of Attorney and Correspondence Has Changed
During the Prosecution of the Prior Application (37 C.F.R. 1.63(d)(4))**

Dear Sir:

The above identified non-provisional patent application is a divisional of U.S. Patent Application No.: 08/934,143 (hereafter "the prior application").

Pursuant to 37 C.F.R. § 1.63(d)(4), Applicants hereby identify that the Power of Attorney and Correspondence address was changed during the prosecution of the prior application. Attached hereto is a copy of (1) a Revocation and New Power of Attorney and (2) a Notice of Change of Correspondence Address and Attorney Docket Number, both of which were filed in the prior application on July 13, 1999 and June 8, 2000, respectively.

Respectfully submitted,



Martin M. Zoltick
Registration Number 35,745
Brian S. Rosenbloom
Registration Number 41,276
Mintz, Levin, Cohn, Ferris,
Glovsky and Popeo, P.C.
11911 Freedom Drive, Suite 400
Reston, VA 20190
Telephone 703/464-4800
Attorneys for Applicant

Date: October 12, 2000

Reston docs: 18946.1 (#M@01!.DOC)